

## Virginia Title V Operating Permit

This permit is based upon the requirements of Title V of the Federal Clean Air Act and Chapter 80, Article 1 of the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution. Until such time as this permit is reopened and revised, modified, revoked, terminated or expires, the permittee is authorized to operate in accordance with the terms and conditions contained herein. This permit is issued under the authority of Title 10.1, Chapter 13, §10.1-1322 of the Air Pollution Control Law of Virginia. This permit is issued consistent with the Administrative Process Act, and 9 VAC 5-80-50 through 9 VAC 5-80-300 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution of the Commonwealth of Virginia.

Authorization to operate a Stationary Source of Air Pollution as described in this permit is hereby granted to:

|                      |  |
|----------------------|--|
| Permittee Name:      | R. R. Donnelley & Sons Company                                       |
| Facility Name:       | R. R. Donnelley & Sons Company -<br>Harrisonburg Manufacturing North |
| Facility Location:   | 2347 Kratzer Road<br>Harrisonburg, Virginia                          |
| Registration Number: | 81000  |

Permit Number  
VRO81000

Effective Date  
March 15, 2006

Expiration Date  
March 14, 2011

Significant Modification Date:

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Regional Director

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Signature Date

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## **I. Facility Information**

### **Permittee**

R. R. Donnelley & Sons Company

2347 Kratzer Road

Harrisonburg, Virginia 22802

### **Responsible Official**

Gary Calleo

Vice President of Manufacturing

### **Facility**

R. R. Donnelley & Sons Company - Harrisonburg Manufacturing North

2347 Kratzer Road

Harrisonburg, Virginia 22802

### **Contact person**

Brad Neher

EHS Supervisor

(540) 564-9548

**County-Plant Identification Number:** 51-165-0114

**Facility Description:** NAICS Code 323117 - Book printing

## II. Emission Units

Equipment to be operated consists of:

**Table I. Emission Units - R. R. Donnelley & Sons - Harrisonburg Manufacturing North**

| Emission Unit ID                          | Stack ID      | Emission Unit Description                           | Size/Rated Capacity* | Pollution Control Device Description (PCD) | PCD ID | Pollutant Controlled | Applicable Permit Date                         |
|---|---------------|---|----------------------|--|--------|----------------------|--|
| <b>Sheetfed Offset Printing Equipment</b> |               |   |                      |  |        |                      |  |
| 751                                       | 51A, B, and C | 1989 Heidelberg 72FL sheetfed offset printing press | 11,000 imp/hr        | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| <b>Web Offset Printing Equipment</b>      |               |   |                      |  |        |                      |  |
| 765                                       | 65            | 1995 Toshiba OA two-web offset printing press       | 861 ft/min           | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 766                                       | 66            | 1996 Toshiba OA two-web offset printing press       | 861 ft/min           | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |

| Emission Unit ID | Stack ID | Emission Unit Description                       | Size/Rated Capacity* | Pollution Control Device Description (PCD) | PCD ID | Pollutant Controlled | Applicable Permit Date                         |
|------------------|----------|---|----------------------|--|--------|----------------------|--|
| 767              | 67       | 2000 Hantscho 16c two-web offset printing press | 38,000 units/hr      | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 768              | 68       | 2003 Hantscho 16c two-web offset printing press | 38,000 units/hr      | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 769              | 69       | 2003 Hantscho 16c two-web offset printing press | 38,000 units/hr      | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 770              | 70       | 1985 Toshiba OA two-web offset printing press   | 1,615 ft/min         | Regenerative Thermal Oxidizer              | RTO1   | VOC                  | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 771              | 71       | 1985 Toshiba OA one-web offset printing press   | 1,615 ft/min         | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |

| Emission Unit ID | Stack ID | Emission Unit Description                       | Size/Rated Capacity* | Pollution Control Device Description (PCD) | PCD ID | Pollutant Controlled | Applicable Permit Date                         |
|------------------|----------|---|----------------------|--|--------|----------------------|--|
| 772              | 72       | 1989 Toshiba OA two-web offset printing press   | 1,615 ft/min         | Regenerative Thermal Oxidizer              | RTO1   | VOC                  | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 773              | 73       | 1994 Toshiba OA two-web offset printing press   | 1,615 ft/min         | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 782              | 82       | 1983 Harris M110 two-web offset printing press  | 861 ft/min           | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 783              | 83       | 2003 Harris M110B two-web offset printing press | 36,000 units/hr      | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 784              | 84       | 1993 Harris M110B two-web offset printing press | 863 ft/min           | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |

| Emission Unit ID | Stack ID | Emission Unit Description                       | Size/Rated Capacity*  | Pollution Control Device Description (PCD) | PCD ID | Pollutant Controlled | Applicable Permit Date                         |
|------------------|----------|---|-----------------------|--|--------|----------------------|--|
| 785              | 85       | 1992 Harris M110B two-web offset printing press | 863 ft/min            | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 787              | 87       | 1983 Harris M110B two-web offset printing press | 863 ft/min            | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 790              | 90       | 2005 Timson T48A one-web offset printing press  | 31,400 impressions/hr | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |
| 791              | 91       | 2007 Timson T48A one-web offset printing press  | 1,700 ft/min          | none                                       | -      | -                    | 2/15/05, as amended 8/11/05, 4/28/06 & 2/23/07 |



| <b>Paper and Dust Handling Systems</b> |                   |   |            |          |              |               |                                   |
|--|-------------------|---|------------|----------|--------------|---------------|-----------------------------------|
| PTS                                    | C1, C2,<br>C3, C4 | Pneumatic trim scrap system<br>(C1 – C3, 1980; C4, 2001)        | 15 tons/hr | none     | -            | -             | 2/15/05, as<br>amended<br>8/11/05 |
| WPD                                    | BH1<br>BH2        | Waste paper dust collection<br>system (BH1, 1980; BH2,<br>2001) | 15 tons/hr | Baghouse | BH1 &<br>BH2 | TSP,<br>PM-10 | 2/15/05, as<br>amended<br>8/11/05 |
| <b>Adhesive Operations</b>             |                   |   |            |          |              |               |                                   |
| ADH                                    | -                 | Binding line adhesive<br>application<br>(1980)                  | -          | none     | -            | -             | 2/15/05, as<br>amended<br>8/11/05 |

\*The Size/Rated capacity is provided for informational purposes only and is not an applicable requirement.

### **III. Sheetfed Offset Printing Press - Emission Unit 751**

#### **A. Limitations**

1. The throughput of VOC contained in inks and fountain solution to the sheetfed printing press (751) shall not exceed 17.1 tons per year, calculated monthly as the sum of each consecutive 12-month period.  
(9 VAC 5-80-110 and Condition 14 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
2. The throughput of VOC contained in blanket wash to the sheetfed printing press (751) shall not exceed 7.9 tons per year, calculated monthly as the sum of each consecutive 12-month period.  
(9 VAC 5-80-110 and Condition 14 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
3. VOC emission controls from cleanup, washup, and disposal shall include the following, or equivalent, as a minimum:
  - a. VOC shall not be intentionally spilled, discarded to sewers, stored in open containers, or handled in any other manner that would result in evaporation beyond that consistent with air pollution control practices for minimizing emissions.
  - b. All VOC containing receptacles shall be closed at all times except during loading and unloading.
  - c. VOC emissions from the disposal of fountain solutions, cleaning solutions, and other products containing more than twenty-five (25) percent by weight shall be reduced by reclamation or incineration.
  - d. VOC emissions shall be reduced by storing cleaning solutions and applicators in covered containers or machines with remote reservoirs when not in use.
  - e. VOC emissions from the use of blanket wash shall be controlled by limiting the daily average of the VOC portion of the cleaning solution to a composite vapor pressure of 10 mm Hg or less at 68 °F. Composite vapor pressure shall be determined as stated in 9 VAC 5-40-7810 C.

(9 VAC 5-80-110 and Condition 6 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

4. VOC emissions from the operation and cleaning of the sheetfed printing press (751) shall not exceed 21.0 tons per year. Annual emissions shall be calculated monthly as the sum of the previous consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently-completed calendar month to the individual monthly totals for the preceding 11 months.

(9 VAC 5-80-110 and Condition 17 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

5. Visible emissions from the sheetfed printing press (751) shall not exceed five (5) percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).

(9 VAC 5-80-110, 9 VAC 5-50-20, and Condition 19 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

## **B. Monitoring and Recordkeeping**

1. The permittee shall determine compliance with the emission limits established in Condition III.A.4 by calculating the monthly VOC emission as follows:

$$E_{VOC} = \sum_{i=1}^n [(I_{VOC,i} \times 0.05) + FS_{VOC,i} + (BW_{VOC,i} \times 0.50)]$$

Where

$E_{VOC}$  = VOC emissions in tons per month  
 $I_{VOC}$  = Monthly throughput of VOC contained in ink, as applied (tons)  
 $FS_{VOC}$  = Monthly throughput of VOC contained in fountain solution (tons)  
 $BW_{VOC}$  = Monthly throughput of VOC contained in blanket wash (tons)  
 $i$  = Each ink, fountain solution, or blanket wash

(9 VAC 5-80-110)

2. Except as indicated in Condition III.B.3, for the purpose of calculating emissions, the VOC content of each coating as supplied shall be based on formulation data as shown on its Material Safety Data Sheet (MSDS). If VOC content is given as a range, the maximum value shall be used.

(9 VAC 5-80-110)

3. If the monthly calculation indicates the annual VOC emissions from any individual ink, fountain solution, coating, or other material are equal to or greater than ten (10) percent of the limits in Condition III.A.4 and no CPDS (Certified Product Data Sheet) has been provided for that material, the VOC content of each such material shall be determined annually using Reference

Method 24 (40 CFR 60, Appendix A) and such content shall be used in calculating emissions. As used herein, a CPDS means documentation, furnished by a material supplier, providing the VOC content of the material, by weight, measured using Reference Method 24. If a MSDS indicates a material contains one hundred (100) percent VOC, it shall be acceptable to use this value and the material density from the MSDS for emissions calculations in lieu of testing. One-fourth of the subject materials used shall be tested each quarter so that all subject materials are tested once per year. Testing shall be conducted, by the permittee or the supplier, for each product formulation received after such emissions level is determined. Each subject material shipment received shall be clearly identified by a product formulation number that may be correlated to Method 24 test results. The most recent test results for each formulation shall be used in emission calculations. Quarterly testing may be discontinued after actual annual VOC emissions from individual subject inks, fountain solutions, coatings or other materials are below ten (10) percent of the limit in Condition III.A.4 for three consecutive months. If quarterly testing is discontinued, the VOC content determined in the latest test for each formulation shall be used in lieu of the MSDS value in emission calculations.

(9 VAC 5-80-110)

4. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, Valley Regional Office. These records shall include, but are not limited to:
  - a. Monthly and annual material balance of VOC used at the sheetfed press (751), to include:
    - (1) Throughput of VOC (in tons) in each of the following: inks, fountain solutions, and cleaning solvents, calculated monthly as the sum of each consecutive 12-month period;
    - (2) Throughput of VOC (in tons) disposed of offsite, calculated monthly as the sum of each consecutive 12-month period;
  - b. Monthly and annual VOC emissions (in tons) for the sheetfed press (751). Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.
  - c. VOC composite partial vapor pressure of each blanket wash and cleaning solvent used.
  - d. Material Safety Data Sheets (MSDS), Reference Method 24 test results, or other vendor information showing VOC content, toxic compound content,

water content, and solids content for each ink, thinner, fountain solution, and cleaning solvent used.

- e. Results of all stack tests and visible emission evaluations.
- f. Scheduled and unscheduled maintenance, and operator training.
- g. EPA Method 24 (40 CFR 60, Appendix A) results (or certification of such by the supplier) showing the VOC content for each ink, fountain solution, blanket wash, and cleaning solvent used, as supplied, for which this information is required by Condition III.B.3.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110 and Condition 24 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

### **C. Testing**

1. The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.  
(9 VAC 5-50-30, 9 VAC 5-80-110 and Condition 25 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
2. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.  
(9 VAC 5-80-110)

#### **IV. Web Offset Printing Presses - Emission Units 765-773, 782-785, 787, 790, and 791**

##### **A. Limitations**

1. Visible emissions from Presses 765-773, 782-785, 787, 790, and 791 shall not exceed ten (10) percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-80-110 and Condition 19 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
2. Visible emissions from Presses 770 and 772 shall not exceed ten (10) percent opacity before installation of the RTO and five (5) percent opacity after installation of the RTO as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-80-110 and Condition 19 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
3. VOC emissions from all web offset presses (Presses 765-773, 782-785, 787, 790, and 791) shall be controlled by using a fountain solution containing alcohol substitutes and limiting the VOC content of the fountain solution to no more than a daily average of five (5) percent by weight.  
(9 VAC 5-80-110 and Condition 2 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
4. VOC emissions from Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 shall be controlled by the use of inks having VOC content of not more than 32% by weight, as applied, calculated as a monthly average.  
(9 VAC 5-80-110 and Condition 3 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
5. VOC emissions from Presses 767-769 and 783 shall be controlled by the use of inks having VOC content of not more than 28% by weight, as applied.  
(9 VAC 5-80-110 and Condition 4 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
6. Upon completion of the installation of the regenerative thermal oxidizer (RTO), Presses 770 and 772 shall be controlled by the RTO. The RTO shall be provided with adequate access for inspection and shall be in operation when either Press 770 or 772 is operating.  
(9 VAC 5-80-110 and Condition 5 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

7. For all printing presses (Presses 765-773, 782-785, 787, 790, and 791), VOC emissions controls from cleanup, washup, and disposal shall include the following, or equivalent, as a minimum:
  - a. VOC shall not be intentionally spilled, discarded to sewers, stored in open containers, or handled in any other manner that would result in evaporation beyond that consistent with air pollution control practices for minimizing emissions.
  - b. All VOC containing receptacles shall be closed at all times except during loading and unloading.
  - c. VOC emissions from the disposal of fountain solutions, cleaning solutions, and other products containing more than twenty-five (25) percent by weight shall be reduced by reclamation or incineration.
  - d. VOC emissions shall be reduced by storing cleaning solutions and applicators in covered containers or machines with remote reservoirs when not in use.
  - e. VOC emissions from the use of blanket wash shall be controlled by limiting the daily average of the VOC portion of the cleaning solution to a composite vapor pressure of 10 mm Hg or less at 68 °F. Composite vapor pressure shall be determined as stated in 9 VAC 5-40-7810 C.  
(9 VAC 5-80-110 and Condition 6 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
8. The RTO shall maintain a destruction efficiency for VOC emissions of no less than 95.0%, on a mass basis.  
(9 VAC 5-80-110 and Condition 8 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
9. The RTO shall maintain a minimum combustion chamber temperature equal to or higher than that determined during the performance testing required by Condition IV.C.1 and a retention time of at least 0.80 seconds. The minimum combustion zone temperature shall be calculated as a three-hour average. Details concerning the method of calculating the three-hour average combustion zone temperature shall be arranged with the Director, Valley Regional Office.  
(9 VAC 5-80-110 and Condition 9 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

10. Prior to installation of the RTO controlling presses 770 and 772, the throughput of VOC in inks, fountain solutions, and cleaning solvents in the presses shall not exceed the following limits (tons per year):

| Process   | Ink VOC | Fountain solution VOC | Blanket Wash / Cleaning solvent VOC                      |
|---|---------|-----------------------|--|
| Press 767   | 3.4     | 1.8                   | 0.5  |
| Presses 768-769   | 6.4     | 0.5                   | 1.3  |
| Press 783   | 5.4     | 0.5                   | 0.67   |
| Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 | 72.3    | 8.3                   | Automatic Blanket Wash: 1.0<br>Manual Blanket Wash: 4.72 |

Throughput shall be calculated monthly as the sum of each consecutive 12-month period.

(9 VAC 5-80-110 and Condition 14 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

11. After installation of the RTO controlling Presses 770 and 772, throughput of VOC (tons per year) in inks, fountain solutions and cleaning solvents to Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 shall not exceed that allowed by the following formula:

$$x_u(0.80) + (x_c)(0.80)\left(1 - \frac{\varepsilon}{100}\right) + y_u + y_c\left[0.30 + 0.70\left(1 - \frac{\varepsilon}{100}\right)\right] + 0.50z_m + z_{au} \leq 69.5$$

where  $x_u$  = VOC (tons) in inks used in uncontrolled presses (Presses 765-766, 771, 773, 782, 784-785, 787, 790 and 791)

$x_c$  = VOC (tons) in inks used in controlled presses (Presses 770 and 772)

$\varepsilon$  = RTO destruction efficiency (percent) as determined in testing of RTO according to Condition IV.C.1

$y_u$  = VOC (tons) in fountain solution used in uncontrolled presses (Presses 765-766, 771, 773, 782, 784-785, 787, 790 and 791)

$y_c$  = VOC (tons) in fountain solution used in controlled presses (Presses 770 and 772)

$z_m$  = VOC (tons) in manual blanket wash/cleaning solvent used in uncontrolled presses (Presses 765-766, 771, 773, 782, 784-785, 787 and 790) and in controlled presses (Presses 770 and 772)

$z_{au}$  = VOC (tons) in automatic blanket wash/cleaning solvent used in uncontrolled presses



Throughput shall be calculated monthly as the sum of each consecutive 12-month period.

(9 VAC 5-80-110 and Condition 15 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

12. VOC emissions from the operation and cleaning of the following equipment shall be limited as specified below:

| Process   | Emissions (tons/year) |
|---|-----------------------|
| Press 767   | 4.8                   |
| Presses 768-769   | 6.3                   |
| Press 783   | 5.2                   |
| Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 | 69.5                  |

Annual emissions shall be calculated monthly as the sum of the previous consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently-completed calendar month to the individual monthly totals for the preceding 11 months.

(9 VAC 5-80-110 and Condition 17 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

13. The approved fuels for the heatset printing presses (Presses 765-773, 782-785, 787, 790, and 791) are natural gas and propane. A change in fuels may require a permit to modify and operate.

(9 VAC 5-80-110 and Condition 12 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

14. The approved fuels for the RTO are natural gas and propane. A change in fuels may require a permit to modify and operate.

(9 VAC 5-80-110 and Condition 13 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

## **B. Monitoring and Recordkeeping**

1. The permittee shall perform weekly inspections of the heatset web printing press stacks (Stack #s 65 – 73, 82 – 85, 87, 90, and 91) to determine the presence of visible emissions. If during the inspection visible emissions are observed, an EPA Method 9 visible emission evaluation (VEE) shall be conducted. The VEE shall be conducted for a minimum period of six (6) minutes. If any of the observations exceed the applicable opacity limit, the observation period shall continue until sixty (60) minutes of observation has

been completed. If the applicable opacity limit was exceeded, timely corrective action shall be taken.

(9 VAC 5-80-110)

2. The permittee shall determine compliance with the emission limit established in Condition IV.A.12 by calculating the monthly VOC emissions for Press 767 (individually), Presses 768 and 769 (combined), Press 783 (individually), and Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 (combined), as follows:

$$E_{VOC} = \sum_{i=1}^n \left[ \begin{aligned} &0.80I_{uVOC,i} + 0.80I_{cVOC,i} \left( 1 - \frac{\varepsilon}{100} \right) \\ &+ FS_{uVOC,i} + \left( 0.30 + 0.70 \left( 1 - \frac{\varepsilon}{100} \right) \right) FS_{cVOC,i} \\ &+ 0.50CS_{mVOC,i} + CS_{aVOC,i} \end{aligned} \right]$$

Where

- $E_{VOC}$  = VOC emissions in tons per month
- $I_{uvoc}$  = Monthly throughput of VOC contained in ink, as applied (tons) in uncontrolled presses
- $I_{cvoc}$  = Monthly throughput of VOC contained in ink, as applied (tons) in controlled presses
- $\varepsilon$  = RTO destruction efficiency (percent) as determined in testing of RTO
- $FS_{uVOC}$  = Monthly throughput of VOC contained in fountain solution (tons) in uncontrolled presses
- $FS_{cVOC}$  = Monthly throughput of VOC contained in fountain solution (tons) in controlled presses
- $CS_{mVOC}$  = Monthly throughput of VOC contained in manual blanket wash/cleaning solvent (tons)
- $CS_{aVOC}$  = Monthly throughput of VOC contained in automatic blanket wash/cleaning solvent (tons)
- $i$  = Each ink, fountain solution, or cleaning solvent used

(9 VAC 5-80-110)

3. Except as indicated in Conditions IV.B.4 and IV.B.5, for the purpose of calculating emissions, the VOC content of each ink as supplied shall be based on formulation data as shown on its Material Safety Data Sheet (MSDS). If VOC content is given as a range, the maximum value shall be used.

(9 VAC 5-80-110)

4. For the inks used in all presses (Presses 765-773, 782-785, 787, 790, and 791), if a MSDS indicates that the VOC content is greater than fifty (50) percent of the applicable limits in Conditions IV.A.4 or IV.A.5, the VOC content shall be determined by a certified product data sheet (CPDS) or by Reference Method 24 testing (40 CFR 60, Appendix A).  
(9 VAC 5-80-110)
5. If the monthly calculation indicates the annual VOC emissions from any individual ink, fountain solution, coating, or other material are equal to or greater than ten (10) percent of the limits in Condition IV.A.12 and no CPDS (as defined in Condition III.B.3) has been provided for that material, the VOC content of each such material shall be determined annually using Reference Method 24 (40 CFR 60, Appendix A) and such content shall be used in calculating emissions. If a MSDS indicates a material contains one hundred (100) percent VOC, it shall be acceptable to use this value and the material density from the MSDS for emissions calculations in lieu of testing. One-fourth of the subject materials used shall be tested each quarter so that all subject materials are tested once per year. Testing shall be conducted, by the permittee or the supplier, for each product formulation received after such emissions level is determined. Each subject material shipment received shall be clearly identified by a product formulation number that may be correlated to Method 24 test results. The most recent test results for each formulation shall be used in emission calculations. Quarterly testing may be discontinued after actual annual VOC emissions from individual subject inks, fountain solutions, coatings or other materials are below ten (10) percent of the limits in Condition IV.A.12 for three consecutive months. If quarterly testing is discontinued, the VOC content determined in the latest test for each formulation shall be used in lieu of the MSDS value in emission calculations.  
(9 VAC 5-80-110)
6. The RTO shall be equipped with devices to continuously measure and record the combustion chamber temperatures. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, at a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the RTO is operating.  
(9 VAC 5-80-110 and Condition 10 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

7. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, Valley Regional Office. These records shall include, but are not limited to:
- a. Except as noted in b, monthly and annual material balance of VOC used at Press 767 (individually), Presses 768 and 769 (combined), Press 783 (individually), and Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 (as a sum for the group), to include:
    - (1) Throughput of VOC in each of the following: inks, fountain solutions, and cleaning solvents; and
    - (2) Throughput of VOC disposed of offsite.
  - b. Following installation of the RTO, the monthly and annual throughput of VOC in inks, in fountain solutions, in manual blanket wash, in automatic blanket wash and in other cleaning solvents shall each be recorded for Presses 770 and 772 (combined) and at Presses 765-766, 771, 773, 782, 784-785, 787, 790, and 791 (as a sum for the group). Annual throughput shall be calculated monthly as the sum of each consecutive 12-month period.
  - c. Following installation of the RTO, monthly calculations of VOC throughput according to the formula in Condition IV.A.11. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total throughputs for the most recently-completed calendar month to the individual monthly total throughputs for the preceding 11 months.
  - d. Monthly and annual VOC emissions (in tons) for Press 767 (individually), Presses 768 and 769 (combined), Press 783 (individually), and Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 (as a group total) according to the formula in Condition IV.B.2. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.
  - e. Material Safety Data Sheets (MSDS), Reference Method 24 test results, or other vendor information showing VOC content, toxic compound content, water content, and solids content for each ink, thinner, fountain solution, manual blanket wash, automatic blanket wash, and other cleaning solvents used.
  - f. VOC content of inks used in Presses 765-766, 770-773, 782, 784-785, 787, 790, and 791 in percent by weight as applied, calculated each month as a monthly average for the group.

- g. VOC composite partial vapor pressure of each blanket wash and cleaning solvent.
- h. VOC content of fountain solutions (as a weight percent), calculated as a daily average, based on the VOC content given on the MSDS or CPDS (as defined in Condition III.B.3), if available, for each fountain solution.
- i. Annual consumption of natural gas and propane for the RTO calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently-completed calendar month to the individual monthly totals for the preceding 11 months.
- j. Operation and combustion temperature monitoring records for the RTO.
- k. EPA Method 24 (40 CFR 60, Appendix A) results (or certification of such by the supplier) showing the VOC content for each ink, fountain solution, blanket wash, and cleaning solvent used, as supplied, for which this information is required by Conditions IV.B.4 and IV.B.5.
- l. Results from weekly inspections of printing press stacks (Stack #s 65 – 73 and 82 – 85, 87, 90, and 91), to include:
  - (1) The date, times, and name of person performing each inspection.
  - (2) Whether or not visible emissions were observed.
  - (3) EPA Method 9 (40 CFR Part 60, Appendix A) observation record, if applicable.
  - (4) Description of corrective action taken, if applicable.
- m. Results of all stack tests and VEEs, including those required by Condition IV.B.1.
- n. Scheduled and unscheduled maintenance, and operator training.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110 and Condition 24 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

- 8. The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air

pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.

(9 VAC 5-80-110 and Condition 31 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

### C. Testing

1. Initial performance tests shall be conducted for VOC from the RTO serving Presses 770 and 772 to determine compliance with destruction efficiency requirements contained in Condition IV.A.8. The tests shall be performed, and demonstrate compliance, within 60 days after installing the RTO but in no event later than 180 days after start-up of the RTO. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-140. The details of the tests are to be arranged with the Director, Valley Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Director, Valley Regional Office, within 45 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 20 of the 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

2. Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted on Presses 770 and 772, upon completion of installation of the RTO. Each test shall consist of ten sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Director, Valley Regional Office. The evaluation shall be performed and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted equipment. One copy of the test result shall be submitted to the Director, Valley Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 21 of the 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

3. Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted on Press 791. Each test shall consist of ten sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Director, Valley Regional Office. The evaluation shall be performed and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-

up of the permitted equipment. One copy of the test result shall be submitted to the Director, Valley Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 22 of the 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

4. Upon request by the DEQ, the permittee shall conduct additional visible emission evaluations from the heatset presses (Presses 765-773, 782-785, 787, 790, and 791) to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with the Director, Valley Regional Office.  
(9 VAC 5-80-110 and Condition 23 of the 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
5. The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.  
(9 VAC 5-50-30, 9 VAC 5-80-110 and Condition 25 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
6. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.  
(9 VAC 5-80-110)

#### **D. Notifications**

1. The permittee shall furnish written notification to the Director, Valley Regional Office, of the following:
  - a. The actual start-up date of Press 791, within 15 days after such date.
  - b. The actual date on which installation of the RTO is completed, within 30 days after such date.
  - c. The actual start-up date of the RTO, within 15 days after such date.
  - d. The anticipated date of the performance tests of the RTO, postmarked at least 30 days prior to such date.

- e. The anticipated date of the visible emissions evaluations for the RTO and Press 791, each postmarked at least 30 days prior to such date.

(9 VAC 5-80-110 and Condition 26 of the 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

- 2. The permittee shall furnish notification to the Director, Valley Regional Office, of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but not later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of the discovery. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Director, Valley Regional Office, in writing.

(9 VAC 5-80-110 and Condition 32 of the 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)



**V. Paper and Dust Handling Systems – Emission Units Pneumatic Trim Scrap (PTS) System and Waste Paper Dust (WPD) Collection System**

**A. Limitations**

1. Particulate matter (PM) emissions generated by the waste paper dust collection system (WPD) shall be controlled by fabric filter. Each fabric filter shall be provided with adequate access for inspection and shall be in operation when any binding line is operating.

(9 VAC 5-80-110 and Condition 7 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

2. The throughput of paper to the pneumatic trim scrap system (PTS) shall not exceed 38,600 tons per year, calculated monthly as the sum of each consecutive 12-month period.

(9 VAC 5-80-110 and Condition 16 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

3. PM emissions from the following equipment shall be limited as specified below:

|                                   |              |                |
|-----------------------------------|--------------|----------------|
| Pneumatic trim scrap system (PTS) | 15 lbs/hr    | 19.3 tons/year |
| Waste paper dust collection (WPD) | 0.01 gr/dscf | 2.6 tons/year  |

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Hourly emissions shall be calculated monthly as a monthly average. Annual emissions shall be calculated monthly as the sum of the previous consecutive 12-month period. Compliance with these emission limits may be determined as stated in Conditions V.A.1 and V.A.2.

(9 VAC 5-80-110 and Condition 18 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

4. Visible emissions from the pneumatic trim scrap system (PTS) shall not exceed twenty (20) percent opacity except during one six-minute period in any one hour during which visible emissions shall not exceed thirty (30) percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.

(9 VAC 5-80-110, 9 VAC 5-50-80, and Condition 19 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

5. Visible emissions from the waste paper dust collection system (WPD) shall not exceed five (5) percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-80-110, 9 VAC 5-50-80, and Condition 19 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
6. The permittee shall develop a Quality Improvement Plan (QIP) for the WPD baghouse(s) according to 40 CFR 64.8 if more than three excursions from the indicator range specified in the Compliance Assurance Monitoring (CAM) Plan (Attachment A) occur within a semi-annual period. Semi-annual periods are as indicated by reporting requirements in Condition IX.C.3.  
(9 VAC 5-80-110 and 40 CFR 64.8)
7. The presence of visible emissions during the weekly baghouse inspections as required by the CAM Plan (Attachment A) or observed from either baghouse at any time shall require further investigation as to the cause of the visible emissions and timely corrective action shall be taken such that the baghouse resumes operation with no visible emissions. The date and time of all such corrective actions shall be recorded.  
(9 VAC 5-80-110)

## **B. Monitoring and Recordkeeping**

1. Each fabric filter shall be equipped with devices to continuously measure the differential pressure drop across the filter. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when any binding line is operating.  
(9 VAC 5-80-110 and Condition 11 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
2. The permittee shall conduct monitoring of the Waste Paper Dust (WPD) system baghouse as specified in the Compliance Assurance Monitoring (CAM) Plan (Attachment A).  
(9 VAC 5-80-110 and 40 CFR 64.6(c))
3. The permittee shall determine compliance with the hourly emission limit established in Condition V.A.3 for the pneumatic trim scrap (PTS) system by calculating particulate emissions each month as follows:

$$E_{PM} = \frac{S}{H}$$

Where

- $E_{PM}$  = Hourly particulate emissions (pounds)  
 $S$  = Monthly paper shavings (tons) processed in the cyclones  
(multiplied by the DEQ-approved emission factor of one pound  
particulate matter per ton paper shavings)  
 $H$  = Hours of operation of the pneumatic trim scrap (PTS) system  
during the month

(9 VAC 5-80-110)

4. The permittee shall determine compliance with the annual emission limit for the pneumatic trim scrap (PTS) system in Condition V.A.3 by calculating the monthly particulate emissions as follows:

$$E_{PM} = \frac{S}{2000}$$

Where

- $E_{PM}$  = Monthly particulate emissions (tons)  
 $S$  = Monthly paper shavings (tons) processed in the cyclones  
(multiplied by the DEQ-approved emission factor of one pound  
particulate matter per ton paper shavings)

Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.

(9 VAC 5-80-110)

5. The permittee shall perform weekly inspections of the cyclone stacks (C1, C2, C3, and C4) to determine the presence of visible emissions. If during the inspection visible emissions are observed, an EPA Method 9 (40 CFR 60, Appendix A) visible emission evaluation (VEE) shall be conducted by a certified observer. The VEE shall be conducted for a minimum period of six (6) minutes. If any of the observations exceed twenty (20) percent opacity, the observation period shall continue until sixty (60) minutes of observation have been completed. If the sixty-minute VEE indicates a violation of the standard, timely corrective action shall be taken.

(9 VAC 5-80-110)

6. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, Valley Regional Office. These records shall include, but are not limited to:
  - a. Weekly baghouse and cyclone inspection results including:
    - (1) The date, time, and name of person performing each inspection;
    - (2) The pressure drop across the fabric filters;
    - (3) Whether or not there were visible emissions;
    - (4) Results of EPA Method 9 (40 CFR 60, Appendix A) testing, if applicable; and
    - (5) Any maintenance or repairs performed as a result of these inspections, if applicable.
  - b. Annual fabric filter inspection results including:
    - (1) The date, time, and name of person performing each inspection;
    - (2) A list of items inspected; and
    - (3) Any maintenance or repairs performed as a result of these inspections, if applicable.
  - c. Monthly and annual throughput of paper to the pneumatic trim scrap system (PTS). Annual throughput shall be calculated monthly as the sum of each consecutive 12-month period.
  - d. Hourly, monthly, and annual PM emissions from the pneumatic trim scrap system (PTS). Hourly emissions shall be calculated each month as a monthly average (monthly paper throughput divided by monthly hours of pneumatic trim scrap system (PTS) operation and multiplied by a DEQ-approved emission factor). Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.
  - e. Hours of operation of the pneumatic trim scrap system (PTS), calculated monthly.
  - f. Results of all stack tests and visible emission evaluations.

- g. Scheduled and unscheduled maintenance, and operator training.
- h. Documentation of monitoring required by the CAM Plan (Attachment A), to include:
  - (1) Log showing results of weekly observations of differential pressure across each baghouse;
  - (2) Log showing results of weekly observations of each baghouse exhaust, including time and date of observation and facility operating conditions;
  - (3) Results of annual internal inspections of each baghouse;
  - (4) Records of repairs or replacements undertaken as a result of annual internal baghouse inspections;
  - (5) Number of excursions in each semi-annual period;
  - (6) Corrective actions taken in response to excursions; and
  - (7) If applicable, any written QIP required by Condition V.A.6 and 40 CFR 64.8 and any activities undertaken to implement a QIP.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110 and Condition 24 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

### **C. Testing**

- 1. The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.  
(9 VAC 5-50-30, 9 VAC 5-80-110 and Condition 25 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)
- 2. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.  
(9 VAC 5-80-110)

#### **D. Reporting**

In addition to the reports required by Condition IX.C.3, written reports containing the following information pertaining to the CAM Plan for each WPD baghouse shall be submitted to the Director, Valley Regional Office, no later than **March 1** and **September 1** of each calendar year. This report must be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:

- a. Summary information on the number, duration, and cause (including unknown cause, if applicable) of excursions and the corrective actions taken;
- b. Summary information on the number, duration, and cause (including unknown cause, if applicable) of monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks);
- c. A description of actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the plan has been completed and reduced the likelihood of similar levels of excursions.

The information listed above may be included in the reports required by Condition IX.C.3.

(9 VAC 5-80-110 and 40 CFR 64.9(a)(2))

## **VI. Adhesive Operations - Emission Unit ADH**

### **A. Limitations**

1. For adhesive operations (ADH), VOC emissions controls from cleanup, washup, and disposal shall include the following, or equivalent, as a minimum:
  - a. VOC shall not be intentionally spilled, discarded to sewers, stored in open containers, or handled in any other manner that would result in evaporation beyond that consistent with air pollution control practices for minimizing emissions.
  - b. All VOC containing receptacles shall be closed at all times except during loading and unloading.
  - c. VOC emissions from the disposal of adhesives and other products containing more than twenty-five (25) percent by weight shall be reduced by reclamation or incineration.
  - d. VOC emissions shall be reduced by storing cleaning solutions and applicators in covered containers or machines with remote reservoirs when not in use.

(9 VAC 5-80-110 and Condition 6 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

2. The throughput of VOC in materials used in adhesive operations (ADH) shall not exceed 12.5 tons per year, calculated monthly as the sum of each consecutive 12-month period.

(9 VAC 5-80-110 and Condition 14 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

3. VOC emissions from the operation and cleaning of adhesive application equipment shall be limited to 12.5 tons per year. Annual emissions shall be calculated monthly as the sum of the previous consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently-completed calendar month to the individual monthly totals for the preceding 11 months.

(9 VAC 5-80-110 and Condition 17 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

4. Visible emissions from adhesive operations (ADH) shall not exceed five (5) percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-80-110 and Condition 19 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

## **B. Monitoring and Recordkeeping**

1. The permittee shall determine compliance with the emission limits established in Condition VI.A.3 by calculating the monthly VOC emission as follows:

$$E_{VOC} = \sum_{i=1}^n (ADH_{VOC,i} + CS_{VOC,i})$$

Where

$E_{VOC}$  = VOC emissions in tons per month

$ADH_{VOC}$  = Monthly throughput of VOC contained in adhesives, as applied (tons)

$CS_{VOC}$  = Monthly throughput of VOC contained in cleaning solvent (tons)

$i$  = Each stain or solvent used

(9 VAC 5-80-110)

2. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, Valley Regional Office. These records shall include, but are not limited to:
  - a. Monthly and annual material throughput (in tons) of VOCs in adhesive operations (ADH), to include those contained in adhesives and cleaning solvents, calculated monthly as the sum of each consecutive 12-month period.
  - b. Annual amount (in tons) of VOC disposed of offsite.
  - c. Monthly and annual VOC emissions (in tons) from adhesive operations (ADH). Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.
  - d. Material Safety Data Sheets (MSDS), Reference Method 24 test results, or other vendor information showing VOC content, toxic compound content, water content, and solids content for each adhesive used.



- e. Results of all stack tests and visible emission evaluations.
- f. Scheduled and unscheduled maintenance, and operator training.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110 and Condition 24 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

### **C. Testing**

1. The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.

(9 VAC 5-50-30, 9 VAC 5-80-110 and Condition 25 of 2/15/05 Permit, as amended 8/11/05, 4/28/06 and 2/23/07)

2. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.

(9 VAC 5-80-110)

## VII. Insignificant Emission Units

The following emission units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720:

| <b>Emission Unit No.</b> | <b>Emission Unit Description</b>  | <b>Citation</b> | <b>Pollutant(s) Emitted (5-80-720B)</b> | <b>Rated Capacity (5-80-720C)</b> |
|--------------------------|-----------------------------------|-----------------|---|-----------------------------------|
| ADH-TKS                  | Water-based adhesive tanks        | 9 VAC 5-80-720B | VOC                                     | -                                 |
| BAT                      | Battery chargers                  | 9 VAC 5-80-720B | PM, acid vapors                         | -                                 |
| BH                       | Binder heaters (combustion)       | 9 VAC 5-80-720C | -                                       | 0.1 MMBtu/hr                      |
| CHL                      | Water chillers                    | 9 VAC 5-80-720B | CFC                                     | -                                 |
| FP                       | Fire pump (combustion)            | 9 VAC 5-80-720C | -                                       | 1.6 MMBtu/hr                      |
| GEN                      | Emergency generators (combustion) | 9 VAC 5-80-720C | -                                       | 1.5 MMBtu/hr                      |
| DEV                      | Plate & film developers           | 9 VAC 5-80-720B | VOC                                     | -                                 |
| FLM                      | Manual film cleaning              | 9 VAC 5-80-720B | VOC                                     | -                                 |
| HWB                      | Hot water boilers (combustion)    | 9 VAC 5-80-720C | -                                       | 6.7 MMBtu/hr                      |
| IJP                      | Ink jet printers                  | 9 VAC 5-80-720B | VOC                                     | -                                 |
| PV                       | Propane vaporizer (combustion)    | 9 VAC 5-80-720C | -                                       | < 10 MMBtu/hr                     |
| PW                       | Parts washers                     | 9 VAC 5-80-720B | VOC                                     | -                                 |
| PST                      | Propane storage tanks             | 9 VAC 5-80-720B | VOC                                     | -                                 |
| SB                       | Steam boilers (combustion)        | 9 VAC 5-80-     | -                                       | 2.2 MMBtu/hr                      |

| <b>Emission Unit No.</b> | <b>Emission Unit Description</b> | <b>Citation</b> | <b>Pollutant(s) Emitted (5-80-720B)</b> | <b>Rated Capacity (5-80-720C)</b> |
|--------------------------|----------------------------------|-----------------|---|-----------------------------------|
|                          |                                  | 720C            |   |                                   |
| UST                      | Underground storage tanks        | 9 VAC 5-80-720B | VOC                                     | -                                 |
| WH                       | Water heaters (combustion)       | 9 VAC 5-80-720C | -                                       | 0.8 MMBtu/hr                      |
| WST                      | Waste storage tank               | 9 VAC 5-80-720C | -                                       | 3,000 gallons                     |

These emission units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

## VIII. Permit Shield & Inapplicable Requirements

Compliance with the provisions of this permit shall be deemed compliance with all applicable requirements in effect as of the permit issuance date as identified in this permit. This permit shield covers only those applicable requirements covered by terms and conditions in this permit and the following requirements which have been specifically identified as being not applicable to this permitted facility:

| Citation                       | Title of Citation  | Description of applicability  |
|--------------------------------|--|---|
| 9 VAC 5-40-4310 <i>et seq.</i> | Emission Standards for Paper and Fabric Coating Application Systems (Rule 4-31)                    | Applies only in VOC emissions control (nonattainment) areas. R. R. Donnelley & Sons Company is located in an attainment area.   |
| 9 VAC 5-40-5060 <i>et seq.</i> | Flexographic, Packaging Rotogravure, and Publication Rotogravure Printing Lines (Rule 4-36)        | Does not apply to lithographic printing.  |
| 9 VAC 5-40-7800 <i>et seq.</i> | Emission Standards for Lithographic Printing Processes (Rule 4-53)                                 | Applies only in designated VOC emissions control (nonattainment) areas. R. R. Donnelley & Sons Company is located in an attainment area.  |
| 40 CFR 63 Subpart KK           | National Emission Standards for Hazardous Air Pollutants from the Printing and Publishing Industry | Does not apply to lithographic printing.  |
| 40 CFR 60 Subpart Kb           | New Source Performance Standards for Volatile Organic Liquid Storage Vessels                       | All storage tanks at the R. R. Donnelley Harrisonburg facility have capacities below the 75 m <sup>3</sup> (19,812.9 gallon) applicability threshold of Subpart Kb.   |
| 40 CFR 63 Subpart EEEE         | National Emission Standards for Hazardous Air Pollutants from Organic Liquids Distribution         | All storage tanks at the R. R. Donnelley Harrisonburg facility have capacities below the 5,000-gallon applicability threshold of Subpart EEEE. Also, transfer operations standards apply to facilities that transfer organic liquids out of the facility; the R. R. Donnelley Harrisonburg facility does not transfer solvents outside of the site. |

Nothing in this permit shield shall alter the provisions of § 303 of the federal Clean Air Act, including the authority of the administrator under that section, the liability of the owner for any violation of applicable requirements prior to or at the time of permit issuance, or the ability to obtain information by (i) the administrator pursuant to § 114 of the federal Clean Air Act, (ii) the Board pursuant to § 10.1-1314 or § 10.1-1315 of the Virginia Air Pollution Control Law or (iii) the Department pursuant to § 10.1-1307.3 of the Virginia Air Pollution Control Law.

(9 VAC 5-80-140)

## **IX. General Conditions**

### **A. Federal Enforceability**

All terms and conditions in this permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.  
(9 VAC 5-80-110 N)

### **B. Permit Expiration**

This permit has a fixed term of five years. The expiration date shall be the date five years from the date of issuance. Unless the owner submits a timely and complete application for renewal to the Department consistent with the requirements of 9 VAC 5-80-80, the right of the facility to operate shall be terminated upon permit expiration.

1. The owner shall submit an application for renewal at least six months but no earlier than eighteen months prior to the date of permit expiration.
2. If an applicant submits a timely and complete application for an initial permit or renewal under this section, the failure of the source to have a permit or the operation of the source without a permit shall not be a violation of Article 1, Part II of 9 VAC 5 Chapter 80, until the Board takes final action on the application under 9 VAC 5-80-150.
3. No source shall operate after the time that it is required to submit a timely and complete application under subsections C and D of 9 VAC 5-80-80 for a renewal permit, except in compliance with a permit issued under Article 1, Part II of 9 VAC 5 Chapter 80.
4. If an applicant submits a timely and complete application under section 9 VAC 5-80-80 for a permit renewal but the Board fails to issue or deny the renewal permit before the end of the term of the previous permit, (i) the previous permit shall not expire until the renewal permit has been issued or denied and (ii) all the terms and conditions of the previous permit, including any permit shield granted pursuant to 9 VAC 5-80-140, shall remain in effect from the date the application is determined to be complete until the renewal permit is issued or denied.

5. The protection under subsections F 1 and F 5 (ii) of section 9 VAC 5-80-80 F shall cease to apply if, subsequent to the completeness determination made pursuant to section 9 VAC 5-80-80 D, the applicant fails to submit by the deadline specified in writing by the Board any additional information identified as being needed to process the application.

(9 VAC 5-80-80 B, C and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

### **C. Recordkeeping and Reporting**

1. All records of monitoring information maintained to demonstrate compliance with the terms and conditions of this permit shall contain, where applicable, the following:
  - a. The date, place as defined in the permit, and time of sampling or measurements.
  - b. The date(s) analyses were performed.
  - c. The company or entity that performed the analyses.
  - d. The analytical techniques or methods used.
  - e. The results of such analyses.
  - f. The operating conditions existing at the time of sampling or measurement.

(9 VAC 5-80-110 F)

2. Records of all monitoring data and support information shall be retained for at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

(9 VAC 5-80-110 F)

3. The permittee shall submit the results of monitoring contained in any applicable requirement to DEQ no later than **March 1** and **September 1** of each calendar year. This report must be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:
  - a. The time period included in the report. The time periods to be addressed are January 1 to June 30 and July 1 to December 31.

- b. All deviations from permit requirements. For purposes of this permit, deviations include, but are not limited to:
  - (1) exceedance of emissions limitations or operational restrictions;
  - (2) excursions from control device operating parameter requirements, as documented by continuous emission monitoring, periodic monitoring, or Compliance Assurance Monitoring (CAM) which indicates an exceedance of emission limitations or operational restrictions; or
  - (3) failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit.
- c. If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that “no deviations from permit requirements occurred during this semi-annual reporting period.”

(9 VAC 5-80-110 F)

#### **D. Annual Compliance Certification**

Exclusive of any reporting required to assure compliance with the terms and conditions of this permit or as part of a schedule of compliance contained in this permit, the permittee shall submit to EPA and DEQ no later than **March 1** each calendar year a certification of compliance with all terms and conditions of this permit including emission limitation standards or work practices. The compliance certification shall comply with such additional requirements that may be specified pursuant to § 114(a)(3) and § 504(b) of the federal Clean Air Act. This certification shall be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:

- 1. The time period included in the certification. The time period to be addressed is January 1 to December 31.
- 2. The identification of each term or condition of the permit that is the basis of the certification.
- 3. The compliance status.
- 4. Whether compliance was continuous or intermittent, and if not continuous, documentation of each incident of non-compliance.



5. Consistent with subsection 9 VAC 5-80-110 E, the method or methods used for determining the compliance status of the source at the time of certification and over the reporting period.
6. Such other facts as the permit may require to determine the compliance status of the source.

One copy of the annual compliance certification shall be sent to EPA at the following address:

Clean Air Act Title V Compliance Certification (3AP00)  
U.S. Environmental Protection Agency, Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

(9 VAC 5-80-110 K.5)

#### **E. Permit Deviation Reporting**

The permittee shall notify the Director, Valley Regional Office, within four daytime business hours of any deviations from permit requirements which may cause excess emissions for more than one hour, including those attributable to upset conditions as may be defined in this permit. In addition, within 14 days of the occurrence, the permittee shall provide a written statement explaining the problem, any corrective actions or preventive measures taken, and the estimated duration of the permit deviation. The occurrence should also be reported in the next semi-annual compliance monitoring report pursuant to General Condition IX.C.3 of this permit. (9 VAC 5-80-110 F.2 and 9 VAC 5-80-250)

#### **F. Failure/Malfunction Reporting**

In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall, as soon as practicable but no later than within four daytime business hours, notify the Director, Valley Regional Office, by facsimile transmission, telephone or telegraph of such failure or malfunction and shall within two weeks provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. Owners subject to the requirements of 9 VAC 5-40-50 C and 9 VAC 5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9 VAC 5-40-40 and 9 VAC 5-50-40. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the owner shall notify the Director, Valley Regional Office. (9 VAC 5-20-180 C)

#### **G. Severability**

The terms of this permit are severable. If any condition, requirement or portion of the permit is held invalid or inapplicable under any circumstance, such invalidity or inapplicability shall not affect or impair the remaining conditions, requirements, or portions of the permit.  
(9 VAC 5-80-110 G.1)

#### **H. Duty to Comply**

The permittee shall comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Air Act or the Virginia Air Pollution Control Law or both and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.  
(9 VAC 5-80-110 G.2)

#### **I. Need to Halt or Reduce Activity not a Defense**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.  
(9 VAC 5-80-110 G.3)

#### **J. Permit Modification**

A physical change in, or change in the method of operation of, this stationary source may be subject to permitting under State Regulations 9 VAC 5-80-50, 9 VAC 5-80-1100, 9 VAC 5-80-1605, or 9 VAC 5-80-2000 and may require a permit modification and/or revisions except as may be authorized in any approved alternative operating scenarios.  
(9 VAC 5-80-190 and 9 VAC 5-80-260)

#### **K. Property Rights**

The permit does not convey any property rights of any sort, or any exclusive privilege.  
(9 VAC 5-80-110 G.5)

#### **L. Duty to Submit Information**

1. The permittee shall furnish to the board, within a reasonable time, any information that the Board may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also

furnish to the Board copies of records required to be kept by the permit and, for information claimed to be confidential, the permittee shall furnish such records to the Board along with a claim of confidentiality.

(9 VAC 5-80-110 G.6)

2. Any document (including reports) required in a permit condition to be submitted to the Board shall contain a certification by a responsible official that meets the requirements of 9 VAC 5-80-80 G.

(9 VAC 5-80-110 K.1)

#### **M. Duty to Pay Permit Fees**

The owner of any source for which a permit under 9 VAC 5-80-50 through 9 VAC 5-80-300 was issued shall pay permit fees consistent with the requirements of 9 VAC 5-80-310 through 9 VAC 5-80-350. The actual emissions covered by the permit program fees for the preceding year shall be calculated by the owner and submitted to the Department by April 15 of each year. The calculations and final amount of emissions are subject to verification and final determination by the Department.

(9 VAC 5-80-110 H and 9 VAC 5-80-340 C)

#### **N. Fugitive Dust Emission Standards**

During the operation of a stationary source or any other building, structure, facility or installation, no owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited, to the following:

1. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
2. Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of them in a clean condition;
3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty material. Adequate containment methods shall be employed during sandblasting or other similar operations;

4. Open equipment for conveying or transporting material likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion; and
5. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.

(9 VAC 5-50-90)

#### **O. Startup, Shutdown, and Malfunction**

At all times, including periods of startup, shutdown, soot blowing, and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Board, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(9 VAC 5-50-20)

#### **P. Alternative Operating Scenarios**

Contemporaneously with making a change between reasonably anticipated operating scenarios identified in this permit, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating. The permit shield described in 9 VAC 5-80-140 shall extend to all terms and conditions under each such operating scenario. The terms and conditions of each such alternative scenario shall meet all applicable requirements including the requirements of 9 VAC 5 Chapter 80 Article 1.

(9 VAC 5-80-110 J)

#### **Q. Inspection and Entry Requirements**

The permittee shall allow DEQ, upon presentation of credentials and other documents as may be required by law, to perform the following:

1. Enter upon the premises where the source is located or emissions-related activity is conducted, or where records must be kept under the terms and conditions of the permit.
2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of the permit.

3. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit.
4. Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(9 VAC 5-80-110 K.2)

#### **R. Reopening For Cause**

The permit shall be reopened by the Board if additional federal requirements become applicable to a major source with a remaining permit term of three or more years. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 9 VAC 5-80-80 F.

1. The permit shall be reopened if the Board or the administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
2. The permit shall be reopened if the administrator or the Board determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
3. The permit shall not be reopened by the Board if additional applicable state requirements become applicable to a major source prior to the expiration date established under 9 VAC 5-80-110 D.

(9 VAC 5-80-110 L)

#### **S. Permit Availability**

Within five days after receipt of the issued permit, the permittee shall maintain the permit on the premises for which the permit has been issued and shall make the permit immediately available to DEQ upon request.

(9 VAC 5-80-150 E)

**T. Transfer of Permits**

1. No person shall transfer a permit from one location to another, unless authorized under 9 VAC 5-80-130, or from one piece of equipment to another.  
(9 VAC 5-80-160)
2. In the case of a transfer of ownership of a stationary source, the new owner shall comply with any current permit issued to the previous owner. The new owner shall notify the Board of the change in ownership within 30 days of the transfer and shall comply with the requirements of 9 VAC 5-80-200.  
(9 VAC 5-80-160)
3. In the case of a name change of a stationary source, the owner shall comply with any current permit issued under the previous source name. The owner shall notify the Board of the change in source name within 30 days of the name change and shall comply with the requirements of 9 VAC 5-80-200.  
(9 VAC 5-80-160)

**U. Malfunction as an Affirmative Defense**

1. A malfunction constitutes an affirmative defense to an action brought for noncompliance with technology-based emission limitations if the conditions of paragraph 2 are met.
2. The affirmative defense of malfunction shall be demonstrated by the permittee through properly signed, contemporaneous operating logs or other relevant evidence that show the following:
  - a. A malfunction occurred and the permittee can identify the cause or causes of the malfunction.
  - b. The permitted facility was at the time being properly operated.
  - c. During the period of the malfunction the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.
  - d. The permittee notified the Board of the malfunction within two working days following the time when the emission limitations were exceeded due to the malfunction. This notification shall include a description of the malfunction, any steps taken to mitigate emissions, and corrective actions taken. The notification may be delivered either orally or in writing. The notification may be delivered by electronic mail, facsimile transmission, telephone, or any other method that allows the permittee to comply with the deadline. This notification fulfills the requirements of 9 VAC 5-80-110 F 2

b to report promptly deviations from permit requirements. This notification does not release the permittee from the malfunction reporting requirement under 9 VAC 5-20-180 C.

3. In any enforcement proceeding, the permittee seeking to establish the occurrence of a malfunction shall have the burden of proof.
4. The provisions of this section are in addition to any malfunction, emergency or upset provision contained in any applicable requirement.

(9 VAC 5-80-250)

#### **V. Permit Revocation or Termination for Cause**

A permit may be revoked or terminated prior to its expiration date if the owner knowingly makes material misstatements in the permit application or any amendments thereto or if the permittee violates, fails, neglects or refuses to comply with the terms or conditions of the permit, any applicable requirements, or the applicable provisions of 9 VAC 5 Chapter 80 Article 1. The Board may suspend, under such conditions and for such period of time as the Board may prescribe, any

Permit for any of the grounds for revocation or termination or for any other violations of these regulations.

(9 VAC 5-80-190 C and 9 VAC 5-80-260)

#### **W. Duty to Supplement or Correct Application**

Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrections. An applicant shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete application was filed but prior to release of a draft permit.

(9 VAC 5-80-80 E)

#### **X. Stratospheric Ozone Protection**

If the permittee handles or emits one or more Class I or II substance subject to a standard promulgated under or established by Title VI (Stratospheric Ozone Protection) of the federal Clean Air Act, the permittee shall comply with all applicable sections of 40 CFR Part 82, Subparts A to F.

(40 CFR Part 82, Subparts A - F)

**Y. Asbestos Requirements**

The permittee shall comply with the requirements of National Emissions Standards for Hazardous Air Pollutants (40 CFR 61) Subpart M, National Emission Standards for Asbestos as it applies to the following: Standards for Demolition and Renovation (40 CFR 61.145), Standards for Insulating Materials (40 CFR 61.148), and Standards for Waste Disposal (40 CFR 61.150).  
(9 VAC 5-60-70 and 9 VAC 5-80-110 A.1)

**Z. Accidental Release Prevention**

If the permittee has more, or will have more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115, the permittee shall comply with the requirements of 40 CFR Part 68.  
(40 CFR Part 68)

**AA. Changes to Permits for Emissions Trading**

No permit revision shall be required, under any federally approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.  
(9 VAC 5-80-110 I)

**BB. Emissions Trading**

Where the trading of emissions increases and decreases within the permitted facility is to occur within the context of this permit and to the extent that the regulations provide for trading such increases and decreases without a case-by-case approval of each emissions trade:

1. All terms and conditions required under 9 VAC 5-80-110 except subsection N shall be included to determine compliance.
2. The permit shield described in 9 VAC 5-80-140 shall extend to all terms and conditions that allow such increases and decreases in emissions.
3. The owner shall meet all applicable requirements including the requirements of 9 VAC 5-80-50 through 9 VAC 5-80-300.

(9 VAC 5-80-110 I)



**Fabric Filter Compliance Assurance Monitoring Plan  
 (Each baghouse for Waste Paper Dust (WPD) collection system)**

| <b>Indicator</b>  | <b>Indicator 1</b>   | <b>Indicator 2</b>   | <b>Indicator 3</b>  |
|---|--|--|---|
| <b>Measurement approach</b>   | Baghouse differential pressure   | Visible emissions  | Work practice: inspection   |
|   | Observe and record the operating differential pressure of each baghouse system, at least once per week.  | Visible emissions from each baghouse exhaust will be monitored and recorded at least weekly using EPA Reference Method 22-like procedures (40 CFR 60, Appendix A). | Annual ductwork and internal bag filter inspections by a qualified employee to verify structural integrity. Results recorded upon completion of each inspection.  |
| <b>Indicator range</b><br><br><b>Quality Improvement Plan (QIP) Threshold</b> | 2.5 ± 2.0 inches of water column (operation outside of this pressure range constitutes an excursion)   | No visible emissions (a finding of any visible emissions constitutes an excursion)   | Internal components (including each individual bag) of and all ductwork leading to each baghouse shall be repaired or replaced as needed (failure to perform annual internal inspection or to repair or replace components as needed in a timely manner constitutes an excursion) |
|   | No more than three excursions outside of the indicator range in any semi-annual reporting period.  | No more than three excursions outside of the indicator range in any semi-annual reporting period.  | N/A   |
| <b><u>Performance criteria:</u></b><br><br><b>Data Representativeness</b>     | The monitoring system for each baghouse consists of a differential pressure gauge that compares the pressures in the inlet and outlet ducts of each baghouse.<br>Accuracy: ± 5%<br>Range: 0-15 (BH1); 0-10 (BH2) | Observations are being made at the emission point of each baghouse.  | Each fabric filter bag, unit housing, associated internal components and all ductwork leading from the binding lines to each baghouse shall be inspected for signs of wear, leakage, or other deterioration that may affect the efficient operation of the unit.                  |

|   |   |  |   |
|---|---|--|---|
| <b>Verification of operational status</b> | N/A   | Records that indicate time, facility operational status and results of each observation shall be maintained on site. | Inspection records  |
| <b>QA/QC practices and criteria</b>       | Validation of pressure gauge conducted annually by comparing gauge reading to calibrated meter or by calibrating using pressure standard or according to manufacturer's instructions. | Qualified personnel to perform observations.   | Qualified personnel familiar with the operating principles of fabric filtration shall perform the inspection and maintenance. |
| <b>Monitoring frequency</b>               | Pressure drop shall be measured continuously and observed at least weekly.  | Weekly   | Annually  |
| <b>Data collection procedures</b>         | Pressure drop shall be monitored and displayed continuously. Results of weekly observations shall be recorded in a log.   | A log shall be kept showing the time, facility operational status and results of each observation.                   | A record shall be kept of all inspections, observations, and any maintenance or corrective action taken.                      |
| <b>Averaging period</b>                   | N/A   | N/A  | N/A   |